

G1  
G2  
G3  
different compounds in solution;

wherein each compound composing the combinatorial array comprises a same common linear, branched, or cyclic molecular core comprising at least three atoms of carbon, nitrogen, oxygen, phosphorus or sulfur having the first and second structural diversity elements attached thereto, and further wherein the compounds composing the array differ from one another by at least one change in a structural diversity element.

G2  
20. (Amended) The method of claim 10 [wherein the], further comprising the step of screening the compounds of the array to provide structure activity relationships useful in the selection of one or more optimum compounds.

21. (Amended) The method of claim 11 [wherein the], further comprising the step of screening the compounds of the subarrays to provide structure activity relationships useful in the selection of one or more optimum compounds.

G3  
25. (Amended) The method of claim 22 [wherein the], further comprising the step of screening the compounds of the subarrays to provide structure activity relationships useful in the selection of one or more optimum compounds.

#### REMARKS

Claims 10-13, 17, 18 and 20-25, as amended, appear in this application for the Examiner's review and consideration. Claims 11, 20, 21 and 25 have been amended to more particularly point out and distinctly claim the subject matter which Applicants regard as their invention. No new matter has been added.

Before addressing the Office Action, Applicants believe a brief description of the claimed invention is helpful. The present invention, as defined by the pending claims, is directed to methods for preparing large numbers of chemical compounds (such as small organic molecules that may be useful as drugs). The methods of the invention are capable of producing arrays which include at least 500 compounds in solution phase; each compound in the array includes a molecular core common to each of the other compounds of the array. The compounds from the array differ from each other in the structural diversity elements which are attached to the common molecular core. All the pending claims require that reactants are added to reaction vessels, and the reactants are then reacted in the reaction vessels under solution-phase conditions to form an array of compounds in solution.